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Mexican Fruit Fly Cooperative Management Program

Lower Rio Grande Valley, Texas

Environmental Assessment
October 2001

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I. Introduction

The Mexican fruit fly, *Anastrepha ludens* (Loew), is native to central Mexico and is a major pest of agriculture throughout many parts of the world. Commercial and home-grown produce that is attacked by the pest is unfit to eat because the larvae tunnel through the fleshy part of the fruit, damaging the fruit and subjecting it to decay from bacteria and fungi. Because of its wide host range (over 40 species of fruits) and its potential for damage, a permanent infestation of Mexican fruit fly would be disastrous to agricultural production in the United States. In the past, eradication programs have been implemented successfully that have prevented the pest from becoming established permanently on the U.S. mainland.

II. Purpose and Need

Mexican fruit fly populations in Mexico represent a continual threat to the agricultural production areas of the Lower Rio Grande Valley in southern Texas. Although a sterile fruit fly preventive release program has been employed in the area to combat the spread of Mexican fruit fly into the United States from Mexico, increased detections of Mexican fruit fly in the Lower Rio Grande Valley of Texas and the subsequent increased potential for spread of the pest, suggest that a more effective and rapid kind of treatment is required. The Animal and Plant Health Inspection Service (APHIS), therefore, has proposed a new cooperative management program to be implemented by APHIS and the Texas Department of Agriculture (TDA) that will include the use of spinosad, a new product, to combat the Mexican fruit fly in the Lower Rio Grande Valley of Texas. To the extent possible, the program will include coordinated control activities in adjacent portions of Mexico; these activities will be under control of the government of Mexico.

APHIS' authority to implement and/or cooperate in the proposed program is based upon the Organic Act (7 United States Code (U.S.C.) 147a), which authorizes the Secretary of Agriculture to carry out operations to eradicate insect pests, and the Plant Protection Act (Title 4 of the Agricultural Risk Protection Act of 2000), which authorizes the Secretary of Agriculture to use emergency measures to prevent dissemination of plant pests new to or not widely distributed throughout the United States. The U.S. Environmental Protection Agency has granted a quarantine exemption under the provisions of section 18 of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, to TDA for the use of spinosad in quarantine programs against exotic fruit fly species in Texas.

This environmental assessment has been completed in compliance with the National Environmental Policy Act of 1969 (NEPA) and to the extent that international activities may be applicable, Executive Order 12114, "Environmental Effects Abroad of Major Federal Actions."

III. Alternatives

Two alternatives were considered with relation to the need for more effective and rapid response to Mexican fruit fly infestations in the Lower Rio Grande Valley region of southern Texas: no action (the status quo sterile preventive release program), or the proposed cooperative management program involving the use of spinosad.

A. No Action

The no action alternative would be characterized by no change from the present sterile Mexican fruit fly preventive release program. The sterile insect technique (SIT) used involves the release of sterilized fruit flies into infested areas where they mate with the wild fruit flies, producing only infertile eggs. In practice, if the sterile insects are released often enough and in sufficient numbers, a wild pest population will decline and eventually be eradicated. SIT can be used by itself (as in the Lower Rio Grande Valley) or it can be used in combination with other techniques for suppression or eradication programs. Increasing the ratio of sterile male fruit flies to wild male fruit flies contributes to success of the technique. SIT has proven to be most effective against pest populations when high overflooding ratios were achievable.

The preventive release program in the Lower Rio Grande Valley, which has been effective in protecting the valley's agricultural resources, might be only marginally effective under certain circumstances, such as periods when large numbers of the pests enter the region, or periods when the production of sterile insects is diminished. Sterile Mexican fruit flies are produced at the APHIS laboratory at Mission, Texas, which has an excellent history of program support. However, insect rearing has its share of operational difficulties, with the potential for diminished production at times.

The environmental consequences of the present preventive release program are quite low, except for the potential for economic losses in the event of movements of unusually large numbers of the pests from Mexico into the Lower Rio Grande Valley of Texas. The irradiation equipment used to sterilize fruit flies at the Mission Laboratory is strictly supervised and checked on a regular basis, and no problems have ever been associated with its use. There are virtually no adverse impacts associated with the distribution of the sterile insects, which are not radioactive and pose no risk to the environment.

B. Proposed Cooperative Management Program

The proposed cooperative management program will continue to use the existing preventive releases of sterile Mexican fruit flies in areas of the Lower Rio Grande Valley. Using a revised strategy, program managers have proposed to release the sterile insects at a somewhat reduced level, but over a broader geographical area to ensure that there are no gaps in the preventive release coverage. In Cameron and Hidalgo Counties, where detections of wild Mexican fruit flies are anticipated, APHIS and TDA will also employ a protocol for aerial, ground, or a combination of aerial and ground applications of the biological insecticide spinosad, which has been found to be highly effective on the Mexican fruit fly. Spinosad applications will be made on the first 10 detections of Mexican fruit fly.

Aerial application of spinosad will be conducted for grove situations only, with a 200 meter radius (31 acres) treated around the fly find. The application rate will be 52 ounces of spinosad formulation per acre. If the detection site and projected treatment area involve houses, program personnel will consult with their Aircraft and Equipment Operations unit to determine what part of the treatment area must be treated by ground application equipment. Ground applications will be directed at the northeast portion of the tree canopies, approximately two-thirds the height of the trees. Five treatments will be made at each detection site, each at 14-day intervals.

Program personnel will notify the public (via English and Spanish fliers), the local police, and the public health authorities of the treatments. They will notify area beekeepers of the treatments. Program personnel also will be responsible for monitoring the treatment sites and conducting bioassays after the treatments. The U.S. Department of Agriculture's Agricultural Research Service (ARS) will conduct a study on the impact of natural enemies in the locations. On the completion of treatments at the 10 detection sites, a review, analysis, and recommendation report will be prepared by program and ARS personnel.

IV. Affected Environment and Potential Environmental Consequences

A. Affected Environment

The affected environment includes areas of the Lower Rio Grande Valley of Texas near the Mexican border where feral Mexican fruit fly detections occur. This will occur most likely in citrus groves or backyard plantings. Although most recent detections have occurred in Cameron County and Hidalgo County, adjacent counties could also have infestations where the cooperative management program applications of spinosad bait are applied. The Lower Rio Grande Valley consists of plains areas and various water bodies associated with the Rio Grande River. The current program area is primarily suburban and rural in character. There are, however, several small cities including Brownsville and Harlingen within the potential program area.

In past programs, detections of Mexican fruit fly in this area have occurred in clusters near the fruit orchards. Applications to control fly outbreaks in these areas are often made by aerial application. There are known to be some adjacent residential areas. Some of these subdivisions (colonias) are inhabited by individuals of Mexican origin with limited financial resources. Many of the colonias have weak housing construction and lack an adequate source of clean drinking water. These conditions adjacent to program sites make it necessary to assess conditions to ensure that the low-income residents of these colonias are not disproportionately affected by program actions.

There are several natural areas primarily associated with the Rio Grande River and the Gulf of Mexico. This includes the Laguna Atascosa National Wildlife Refuge, the Santa Ana National Wildlife Refuge, the Bentsen-Rio Grande Valley State Park, and the Rio Grande National Wildlife Refuge. These protected areas are home to a number of endangered and threatened species of wildlife.

B. Potential Environmental Consequences

The analysis of potential environmental consequences will consider the alternatives of no action and the proposed cooperative management program. Because the principal environmental concern over this program relates to its use of chemical pesticides, this assessment will focus on the potential environmental consequences of the pesticide applications on human health, nontarget species, and endangered and threatened species.

1. No Action

Under the no action (no APHIS effort) alternative, Mexican fruit fly control would continue preventive measures through a sterile insect technique. This involves ongoing releases of sterilized fruit flies over commercial fruit groves to ensure that their produce is kept free of Mexican fruit fly. Production of sterile flies is achieved through irradiation of immature stages of Mexican fruit fly that are raised in rearing facilities.

Monitoring of fly populations suggests that this approach allows residential infestation of Mexican fruit fly to continue and threatens the crops with infestation from these outbreaks. A heavy infestation could make the ongoing sterile release program ineffective at protecting the groves. This could lead to spread of Mexican fruit fly and intensive pesticide application by the State, grower groups, or individuals. Any response to control such an expanded infestation by individuals or organizations would probably result in a greater magnitude of environmental impact than would be associated with the cooperative management program proposed to be coordinated by APHIS. Under those conditions, any available controls (including more hazardous chemical pesticides) could be used, resulting in greater environmental impact than is associated with the action alternative analyzed within this assessment.

a. Human Health

Under the no action alternative, APHIS would continue to release sterile flies to prevent damage from ongoing movement of feral flies into commercial groves. The irradiation treatments are conducted in approved facilities in accordance with strict safety guidelines. The irradiation equipment releases radiation to the immature flies to cause sterility, but the flies do not store any radioactivity from the exposure. Irradiation equipment at approved facilities is checked on a regular basis by the USDA Radiation Safety Staff in accordance with standards set by the Nuclear Regulatory Commission. No problems with the use of irradiation equipment under APHIS permits have been known to occur. Equipment design and shielding ensure negligible risks to workers at these facilities. Monitoring of radiation at the facilities has demonstrated background radiation level at plant boundaries. The release of flies may occur from aircraft or ground motor vehicles, and the environmental risks from these releases are negligible. Safety procedures are designed to prevent accidents, and the negligible releases of hydrocarbons from combustion in the engines do not contribute substantially to air pollution.

Private homeowners and commercial growers would have few options other than pesticides to reduce the Mexican fruit fly damage to their crops if the ongoing sterile release program were ineffective. Any pesticides registered for use could be applied in an unsupervised and uncoordinated manner. Accordingly, greater pesticide amounts and higher frequencies of application are likely to be used than would be expected with a coordinated, cooperative government program. In addition to the direct toxic effects of those pesticides, humans could also be affected by cumulative impacts resulting from synergistic effects of combining various pesticides for use against Mexican fruit fly. Human exposure to pesticides and the resulting adverse consequences probably would be greater than if pesticides were applied in a cooperative government program. The spread of the Mexican fruit fly infestation would reduce the amount of locally available produce and may restrict the fruit consumption of some members of the public. Some members of the public may depend upon this source of fruit as a substantial portion of their diet.

b. Nontarget Species

The irradiation equipment is in enclosed facilities where nontarget species are not likely to occur. The irradiators are enclosed and shielded to ensure that only the target immature Mexican fruit flies are exposed to the radiation. Therefore, nontarget species are unlikely to be exposed.

Broader pesticide use resulting from ineffective efforts to combat Mexican fruit fly would increase the pesticide load to the environment and, therefore, increase the probability of effects to nontarget species. The potential expansion and establishment of the pest also would have unknown effects on insect community structure and on predators in those systems. Coordinated efforts by APHIS as described in the cooperative management program would limit the effects to nontarget species to those locations where control is needed and would prevent excessive use of insecticide that would be expected without a coordinated approach.

c. Endangered and Threatened Species

Further expansion of Mexican fruit fly's range would be likely to include endangered and threatened species habitats, with unquantified risk to those species from uncoordinated pesticide use. No adverse impacts to endangered or threatened species would result directly from APHIS' implementation of the no action alternative.

2. Proposed Cooperative Management Program

The proposed cooperative management program will continue to use the existing preventive releases of sterile Mexican fruit flies in areas of the Lower Rio Grande Valley. The minimal environmental impacts from this activity would be as described in the no action alternative. In Cameron and Hidalgo Counties, where detections of wild Mexican fruit flies occur, APHIS and TDA will also employ a protocol for applications of spinosad bait spray.

The component of the proposed program which potentially has the greatest impact on the environment is the use of the chemical pesticide, spinosad. Special registration procedures are required for pesticides used against exotic pests, such as the Mexican fruit fly which is not native to this country. A section 18 (emergency) registration under the Federal Insecticide, Fungicide, and Rodenticide Act has been approved by EPA for the use of spinosad bait spray in the State of Texas. Because of the limited and restricted nature of the spinosad bait spray applications necessary for this program, the effects have been analyzed within the framework of an environmental risk assessment.

Three major factors influence the risk associated with pesticide use: fate of the pesticide in the environment, its toxicity to humans and nontarget species, and the exposure of humans and nontarget species to the pesticide. These factors will be evaluated for the proposed spinosad applications.

a. Spinosad Bait Spray

(i) Fate

Spinosad is a mixture of macrocyclic lactones produced naturally by an actinomycete bacteria. The active ingredients in spinosad are spinosyn A and spinosyn D. The bait formulation includes sugars and attractants that are of low toxicity and do not contribute to the overall hazard, but these substances may decrease the rate of degradation, particularly photodegradation by blocking the penetration of sunlight. The actual concentration of spinosad used by the program in the bait spray formulation is very low (0.008%). Spinosad is registered for use on various crops and has permanent EPA-approved tolerances for some fruits (including citrus), nuts, vegetables, cotton, and meat.

Thorough risk assessments have been prepared for human health (USDA, APHIS, 1999a) and nontarget species (USDA, APHIS, 1999b) for spinosad bait spray applications. Information from those assessments is incorporated by reference into this document and is summarized here.

The hazards of spinosad to environmental quality are minimal. This is primarily a function of the environmental fate. Spinosad persists for only a few hours in air and water. The low vapor pressure of spinosad indicates that it is not volatile. The aerobic soil half-life of both spinosyn A and D is 14.5 days. The photolysis half-life in soil is 8.68 days for spinosyn A and 9.44 days for spinosyn D (Dow Agrosciences, 1998). Although spinosyn A is water soluble, the compound readily binds to organic matter and no leaching to groundwater is anticipated for either spinosyn. The spinosyns bind readily to organic matter on leaf surfaces also. The photodegradation of spinosad residues occurs readily on plants, and tolerances on crops are not of great concern to EPA (EPA, 1998a). The rapid breakdown and lack of movement in the environment ensure that there will be no permanent effects on the quality of air, soil, and water for the program applications.

(ii) Toxicity

Spinosad acts as a contact and stomach poison against insects, and it is particularly effective against all stages of flies (Adan et al., 1996). The mode of toxic action of this compound against insects has been shown to relate to the widespread excitation of isolated neurons in the central nervous system (Salgado et al., 1997). This is caused by persistent activation of nicotinic acetylcholine receptors and prolongation of acetylcholine responses. The symptoms of intoxication are unique and are typified by initial flaccid paralysis followed by weak tremors and continuous movement of crochets and mandibles (Thompson et al., 1995). The receptors affected by spinosyns in insects are not present or vital to nerve transmission in most other taxa, so toxicity to most other organisms is low. There have been no reported human illnesses from the manufacturing or pesticide applications of spinosad.

Acute hazards from exposure to spinosad are low to mammals by all routes of exposure. The acute oral LD_{50} to rats is greater than 5,000 milligrams (mg) of spinosad per kilogram (kg) body weight (Dow Agrosciences, 1998; EPA, 1998a). The acute dermal LD_{50} to rats is greater than 2,800 mg/kg. Primary eye irritation tests in rabbits showed slight conjunctival irritation. Primary dermal irritation studies in rabbits showed slight transient erythema and edema. Spinosad was not found to be a skin sensitizer.

Subchronic and chronic studies also indicate low hazard. The systemic NOEL for spinosad from chronic feeding of dogs was determined to be 2.68 mg/kg/day (EPA, 1998a). The LOEL for this study (8.22 mg/kg/day) was based upon vacuolated cells in glands (parathyroid) and lymphatic tissues, arteritis, and increases in serum enzymes. The regulatory reference values selected for spinosad are based upon this study applying a safety factor of 10 for occupational exposure to make allowance for inter-species variability. An additional safety factor of 10 was applied for general public exposure to make allowance for intra-species variability and potential for wider ranges in sensitivity in the general public than in the occupational population. A neuropathology NOEL of 46 mg/kg/day was determined for male rats. EPA has classified the carcinogenic potential of spinosad as Group E – no evidence of carcinogenicity based upon chronic studies of mice and rats (EPA, 1998b). There has been no evidence of mutagenic effects from spinosad. The reproductive NOEL from a 2-generation study of rats was determined to be 10 mg/kg/day (EPA, 1998a).

The primary active ingredients in spinosad are spinosyn factor A and spinosyn factor D. All other substances in the formulated products of spinosad are of lower toxicity. Spinosyns are relatively inert, and their metabolism in rats resulted in either parent compound or N- and O- demethylated glutathione conjugates as excretory products (EPA, 1998a). Studies have found that 95% of the spinosad residues in rats are eliminated within 24 hours.

Acute oral doses of spinosad are very slightly toxic to mammals and practically nontoxic to birds (table 1). Spinosad is slightly to moderately toxic to fish and most aquatic invertebrates, but highly toxic to marine molluscs (table 2). Spinosad is of slight to moderate acute toxicity to algae.

Table 1. Acute Oral LD_{50}s[1] for Selected Species Dosed with Spinosad (mg/kg)

Rat	>5,000
Mouse	23,100
Shrew	3,400
Mallard	>2,000
Pheasant	>2,000

[1]LD_{50} = Lethal dose for 50% of animals treated

Table 2. Spinosad 96-hour LC_{50}s[1] for Selected Aquatic Species (µg/L)

Grass shrimp	9,760
Rainbow trout	30,000
Bluegill	5,900
Daphnia	92,600
Eastern oyster	295

[1]LC_{50} = Lethal concentration for 50% of animals treated

(iii) Exposure and Risk

Human Health

Potential exposure to humans is by dermal absorption, inhalation, or ingestion of residues. Dermal contact with treated surfaces is the primary exposure route for the public. Public exposure from ground bait spray application is less than exposure from an aerial application because less area is treated and less pesticide is used. Workers, such as ground applicators and the ground crew for aerial applications, may have inhalation exposure as well as dermal exposure.

Results of the quantitative risk assessment prepared for spinosad bait spray applications suggest that potential exposures are not likely to result in substantial adverse human health effects. The highest potential occupational exposure was determined to occur in the extreme exposure scenario for ground personnel. The margin of safety for these program workers is about 100-fold. The highest potential exposure to spinosad for the general public occurs in the extreme scenario of a child consuming contaminated runoff water. The margin of safety for this individual exceeds 1,000-fold. No adverse effects are anticipated to human health from spinosad bait spray applications, even under extreme or accidental exposure scenarios.

Risks to human health from spinosad bait spray applications were also analyzed qualitatively for some chronic and subchronic effects. Since EPA has determined that there is no evidence of mutagenicity or any carcinogenic potential for spinosad, these outcomes are not expected to be of any concern. Most of the potential outcomes tested in laboratory tests required much higher exposures than would be anticipated from program applications. Outcomes such as reproductive and developmental toxicity, teratogenicity, and neurotoxicity are highly unlikely to occur from exposures to program applications. Spinosad is not a skin sensitizer, but other immunotoxic responses could occur if allergic reactions or hypersensitive conditions exist. Based upon experience in past programs, it must be kept in mind that the source of any immunotoxic responses to exposure may relate to a reaction to the bait in the formulation rather than the pesticide.

Consistent with Executive Order 12898, “Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations,” and with Executive Order 13045, “Protection of Children From Environmental Health Risks and Safety Risks,” APHIS considered the potential for disproportionately high and adverse human health or environmental effects on any minority populations, low-income populations, and children. In particular, the close proximity of the program actions to some colonias was an issue of concern.

Spinosad bait applications are made at very low application rates, and potential human exposures are less than those associated with any adverse effects. Although some individuals may have allergic or hypersensitive reactions to spinosad or the bait in the formulated product, this response to exposure has not been shown to relate to income level, ethnic origins, or age. Determination of the spinosad reference dose for pesticide regulation did not include any additional safety factor for children based on the lack of evidence for differences in susceptibility based upon age. Therefore, no disproportionate effects on children, minority populations, and low-income populations in the Lower Rio Grande Valley are anticipated as a consequence of implementing the preferred alternative.

Nontarget Species

The estimated doses to wildlife are based on the environmental concentrations determined from exposure models and scenarios. These results are described in greater detail in the nontarget risk assessment (USDA, APHIS, 1999b). The exposure of nontarget organisms to spinosad from bait spray applications is lower than to malathion. As a result of low exposure and low toxicity, the potential for adverse effects is expected to be negligible to mammals, birds, reptiles, fish, and amphibians from spinosad bait spray applications. Unlike malathion (toxic to all organisms by all routes of exposure), the active ingredients in spinosad are only toxic to certain invertebrates primarily by dermal and oral exposure. Any invertebrate that is attracted to and feeds upon the spinosad bait will be affected, but most species are not attracted to the bait. A small number of phytophagous invertebrates (particularly Lepidoptera caterpillars) may be killed by consumption of residues on leaves from spinosad bait spray applications. Predatory invertebrates in treated areas are not expected to have much mortality. Although spinosad bait spray is not attractive to honey bees, their susceptibility to spinosad toxicity is high. Studies of spinosad bait applications indicate that the repellant nature of spinosad results in negligible exposures to honey bees and other pollinators, so no toxic effects or mortality to honey bees have been observed in field studies at locations where spinosad bait spray has been applied.

Aquatic species are at very low risk of adverse effects. The calculated concentration of spinosad in water is several orders of magnitude less than any concentration known to adversely affect aquatic organisms. Residues of spinosad are not expected to bioconcentrate based upon the water solubility and short residual half-life in water.

Endangered and Threatened Species

Section 7 of the Endangered Species Act of 1973 (ESA) requires Federal agencies to consult with the U.S. Department of the Interior, Fish and Wildlife Service (FWS) if species listed or proposed for listing are likely to be adversely affected. The program officials have consulted and will use protective measures to ensure no adverse effects occur to endangered and threatened species and their habitats. The species that could require protection during control efforts are dependent upon the control methods used (i.e., not all control methods affect all species equally). Thus, protective measures will vary depending on the control method being used and the species found within the limited treatment area. Control activities in Mexico are under the control of the Government of Mexico, which has responsibility for the protection of endangered and threatened species on its sovereign soil.

Spinosad bait spray is not selective for Mexican fruit fly alone. Ingestion of spinosad by insects other than Mexican fruit fly could result in their deaths. If their habitats overlapped with the program treatments, those species could be adversely affected by aerial application of spinosad bait. Repeated aerial sprays of spinosad bait generally would reduce insect numbers. Reduction of insect populations could reduce pollinator species for threatened and endangered plants, and would reduce potential food resources for endangered and threatened insectivores. Spinosad is not expected to affect any aquatic species or habitats, but potential effects to susceptible terrestrial invertebrates and their habitats must be considered if endangered and threatened species are present.

b. Cumulative Impacts

Cumulative impacts are those impacts, either direct or indirect, that result from incremental impact of the program action when added to other past, present, and reasonably foreseeable future actions. It is difficult to quantitatively predict the cumulative impacts for a potential emergency program in an environmental assessment such as this. The impacts can be considered from a subjective perspective. Some chemicals, when used together, have been shown to act in a manner that produces greater toxicity than would be expected from the addition of both toxicities. This effect is known as potentiation or synergism. The mechanism of toxic action of spinosad is unique and different from other registered agrochemicals. It is, therefore, unlikely that synergism or potentiation of the toxicity of spinosad could occur through exposure to other chemicals.

Impacts from implementation of the program are expected to be temporary with potential adverse effects ending shortly after the cooperative management program actions are completed. No bioaccumulation or environmental accumulation of spinosad is foreseen due to its rapid degradation rates. In contrast, the ongoing applications expected from the no action alternative would be expected to have cumulative effects. Therefore, any cumulative impacts of the cooperative management program are expected to be less than those that might occur under the no action alternative, an alternative which most likely would result in escalating use of pesticides by the public.

In terms of the cumulative effects of spinosad use from the proposed action combined with pesticide use from growers and other programs, the small area requiring treatment for this program should not substantially increase exposures or risks to workers, public, or nontarget species.

c. Methods To Reduce Risk

Human pesticide exposure would be primarily to workers. Current worker safety measures protect pesticide applicators from excessive exposure to spinosad during routine operations. Dermal exposure of workers to spinosad is substantially reduced by the use of protective clothing.

Residents near the cooperative management program areas could be exposed to spinosad bait spray depending on where the pesticides are applied. The public could also be exposed to residues on any treated material moved out of the eradication area. The short half-life of spinosad makes the likelihood of these exposures low. Written public notification will provide information about the schedule for pesticide treatments and applications and specific precautions that residents should take to avoid exposure, such as remaining indoors during bait spray applications. However, individuals with greater sensitivity to spinosad or the protein bait may need to take extra precautions to avoid even minimal exposure.

The proposed program, properly implemented, represents a low risk to human health except for extremely sensitive individuals who have had problems with similar programs in the past. However, this assessment does contain uncertainties associated with toxicity data gaps and estimations of exposure. Potential risks will be substantially diminished due to the localized nature of actions taken under the cooperative management program.

Risks to nontarget organisms can be reduced by limiting exposure. If aerial applications are conducted, beekeepers should be notified. A survey of water bodies within the treatment area should be conducted and mapped so they will be avoided. Ground application of spinosad bait spray poses little direct exposure or risk. Timing of the treatments should be considered to reduce potential exposures.

Appendix A. References Cited

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Appendix B. Consultation

The following agencies were consulted during the preparation of this environmental assessment:

U.S. Department of Agriculture
Animal and Plant Health Inspection Service
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4700 River Road, Unit 134
Riverdale, Maryland 20737-1236

U.S. Department of Agriculture
Animal and Plant Health Inspection Service
Policy and Program Development
Environmental Services
4700 River Road, Unit 149
Riverdale, Maryland 20737-1238

Finding of No Significant Impact
for
Mexican Fruit Fly Cooperative Management Program
Lower Rio Grande Valley, Texas
Environmental Assessment,
October 2001

The U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), has prepared an environmental assessment (EA) that analyzes potential environmental consequences of alternatives for control of the Mexican fruit fly, an exotic agricultural pest that presents an ongoing threat to fruit production in the Lower Rio Grande Valley of Texas. The EA, incorporated by reference in this document, is available from—

U.S. Department of Agriculture
Animal and Plant Health Inspection Service
Plant Protection and Quarantine
903 San Jacinto Boulevard, Suite 270
Austin, TX 78701

or

U.S. Department of Agriculture
Animal and Plant Health Inspection Service
Plant Protection and Quarantine
Program Support
4700 River Road, Unit 134
Riverdale, MD 20737-1236

The EA analyzed alternatives of (1) no action and (2) the proposed cooperative management program (the preferred alternative). Each alternative was determined to have potential environmental consequences. The proposed program was preferred because of its capability to achieve the control objective in a way that reduces the magnitude of those potential environmental consequences. Program standard operational procedures and mitigative measures serve to negate or reduce the potential environmental consequences of this program.

APHIS has determined that there would be no signficant impact to the human environment from the implementation of the cooperative management program, the preferred alternative. APHIS' Finding of No Significant Impact for this program was based upon the limited nature of the program and its expected environmental consequences, as analyzed in the EA. In addition, APHIS anticipates no adverse impacts to threatened or endangered species or their habitats from this action. I find that the cooperative management program poses no disproportionate adverse effects to children or minority and low-income populations and the actions undertaken for this program are entirely consistent with the principles of "protection of children," as expressed in Executive Order 13045, and with the principles of "environmental justice," as expressed in Executive Order 12898, "Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations."

Lastly, because I have not found evidence of significant environmental impact associated with the proposed program, I further find that an environmental impact statement does not need to be prepared and that proposed cooperative management program may be implemented.

/s/ ____________________________ 10/10/01 __________

Joseph Davidson — Date

State Plant Health Director - Texas

Plant Protection and Quarantine

Animal and Plant Health Inspection Service